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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,844	11/06/2000	Mitsuaki Oshima	2000 1524	5657

7590 01/09/2004

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EXAMINER

LE, AMANDA T

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 01/09/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/705,844

Applicant(s)

OSHIMA, MITSUAKI

Examiner

Amanda T Le

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 50-97 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 50-97 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 50-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halbert-Lassalle et al (U.S. 5,197,061, IDS filed on 11/06/00) in view of Lawrence et al (5,164,963, IDS filed on 11/06/00).

Regarding claims 50-53, 74-77, 66-69, Halbert-Lassalle et al discloses a device for the transmission of digital data comprising the following claimed limitations: “a first error correction code (ECC) encoder operable to encode the first data stream to produce an ECC encoded first data stream” (Fig. 3, 301); “a second error correction code (ECC) encoder operable to encode the second data stream to produce an ECC encoded second data stream” (Fig. 3, 304), “a modulator operable to modulate the ECC encoded first data stream according to an m-level PSK and to modulate the ECC encoded second data stream according to an n-level PSK to

produce modulated signals” (Fig. 3, 311, 314), “an inverse Fast Fourier transformer (IFFT) operable to convert the modulated signals into IFFT converted signals, a transmitter operable to transmit the IFFT converted signals.” (Fig. 3, 32)

Regarding claims 58-61, 66, 82-85, 90-93, Halbert-Lassalle et al further discloses the following claimed limitations: “a Fast Fourier Transformer (FFT) operable to convert an input signal into a FFT converted signal; wherein the input signal has information of a first data stream and a second data stream, both of which are ECC encoded, said ECC encoded first data stream is modulated according to an m-level PSK, said ECC encoded second data stream is modulated according to an n-level PSK” (Fig. 3, 35); “a first error correction code (ECC) decoder operable to decode the first demodulated data stream to produce the first data stream” (Fig. 3, 36), “a second error correction code (ECC) decoder operable to decode the second demodulated data stream to produce the second data stream” (Fig. 3, 37). With respect to the claimed limitation “a demodulator operable to demodulate the FFT converted signal to produce a first demodulated data stream and a second demodulated data stream”, it would have been obvious to one of ordinary skill in the art at the time of the invention that “the demodulation process” described by Halbert-Lassalle et al (Fig. 3, 34) can be carried out after the FFT process (Fig. 3, 35) if either PSK or QAM, not both, modulated signals are received at the receiver.

For the above claims, the prior art differs from the claimed invention in that the ECC schemes are not specifically taught as being BCH and RS. Nonetheless, such coding techniques are well known in the art at the time of the invention (see Lawrence et al, col. 11, lines 15-23). Since Halbert-Lassalle et al teaches the use of different channel coding technique for different data streams to obtain different level of protections, as stated above, it would have been obvious

to one of ordinary skill in the art at the time of the invention to employ any well known coding techniques in the art, such as BCH or RS codings, to implement Halbert-Lassale et al's teachings. The selection of the channel encoding technique depends on the design criteria of the particular system. BCH codes are known for its random error correction capability. Reed Solomon codes are known as very efficient and most useful when multi-bit characters are being error-checked.

With respect to claims 54-57, 62-65, 70-73, 78-81, 86-89, 94-97, Halbert-Lassalle et al discloses all the subject matters claimed, as explained above, except for "to modulate the ECC encoded second data stream according to an n-level QAM to produce a modulated signals". In other words, the prior art reference differs from the claimed invention in that it specifies the modulation types to be n-PSK and m-QAM, rather than m-QAM and n-QAM. Nonetheless, the prior art further teaches that the protection level may be adapted by acting on the type of modulation and the type of modulation may be variable (col. 9, lines 48-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to select m-QAM and n-QAM as the two types of modulation to be used for achieving the desirable protection level. The particular selection is simply is a matter of choice to meet the design criteria of a particular application.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Amanda Le** whose telephone number is (703) 305-4769.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

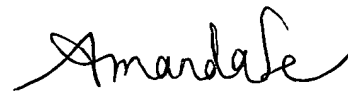
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



AMANDA T. LE
PRIMARY EXAMINER